PC Screen

+y

+z

+
x

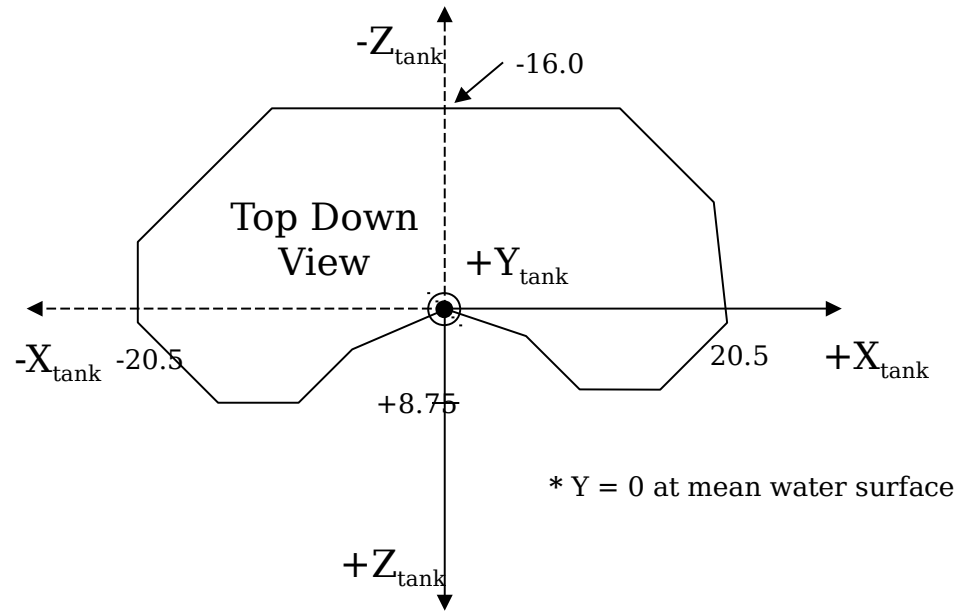Default **VRML**
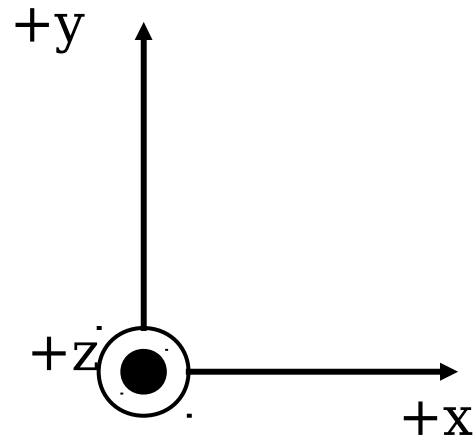Coordinate System

Monterey Bay Aquarium
Kelp Forest
Virtual World
Coordinate System

$\odot$ - indicates axis coming out of diagram

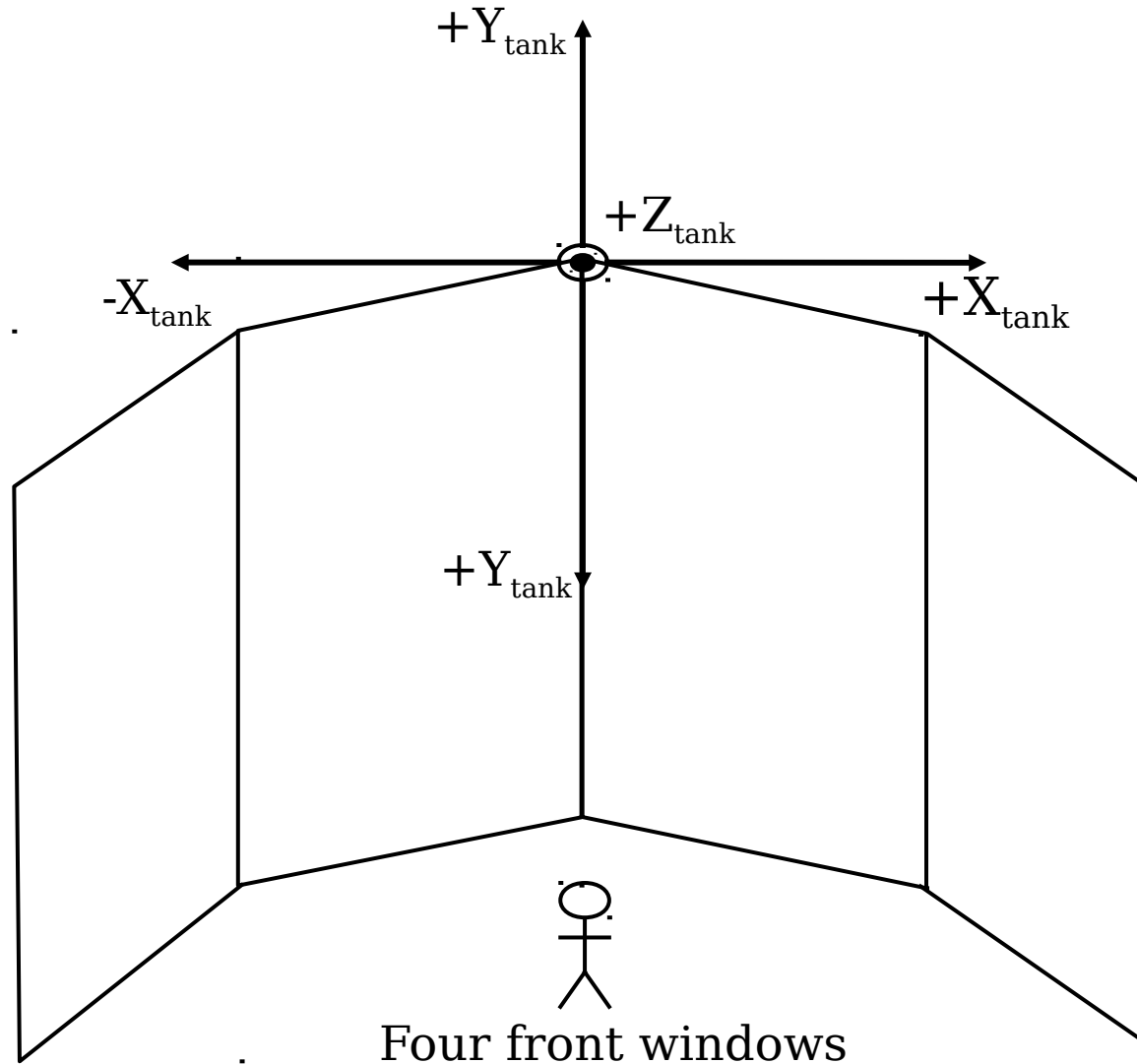$\otimes$ - indicates axis going into diagram

-Z$_{tank}$ -16.0

Top Down
View   +Y$_{tank}$

-X$_{tank}$ -20.5   20.5   +X$_{tank}$

+8.75

+Z$_{tank}$

* Y = 0 at mean water surface

+Y$_{tank}$

k

+Z$_{tank}$ +X$_{ta}$

nk

Four front windows

PC Screen

+y

+z

+x

Default **VRML**
Coordinate System

⊙ - indicates axis coming out of diagram

Tank Coordinate System

$+Y_{tank}$

$+Z_{tank}$

$-X_{tank}$

$+X_{tank}$

$+Y_{tank}$

Four front windows

⊙ - indicates axis coming out of diagram

* Y = 0 at mean water surface

Tank Coordinate System

-Z_tank

-16.0

Top Down
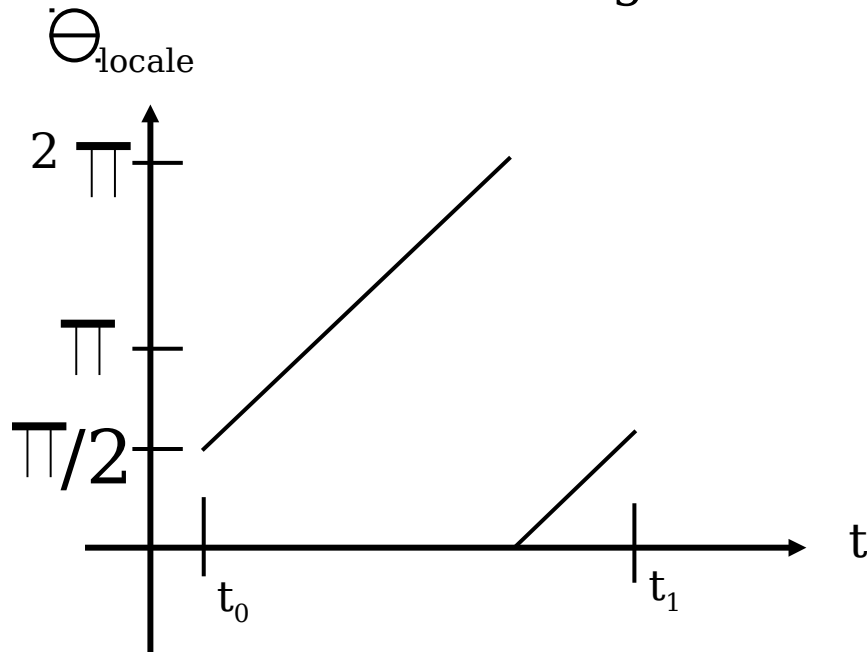View

+Y_tank

-X_tank   -20.5

+X_tank

20.5

+8.75

+Z_tank
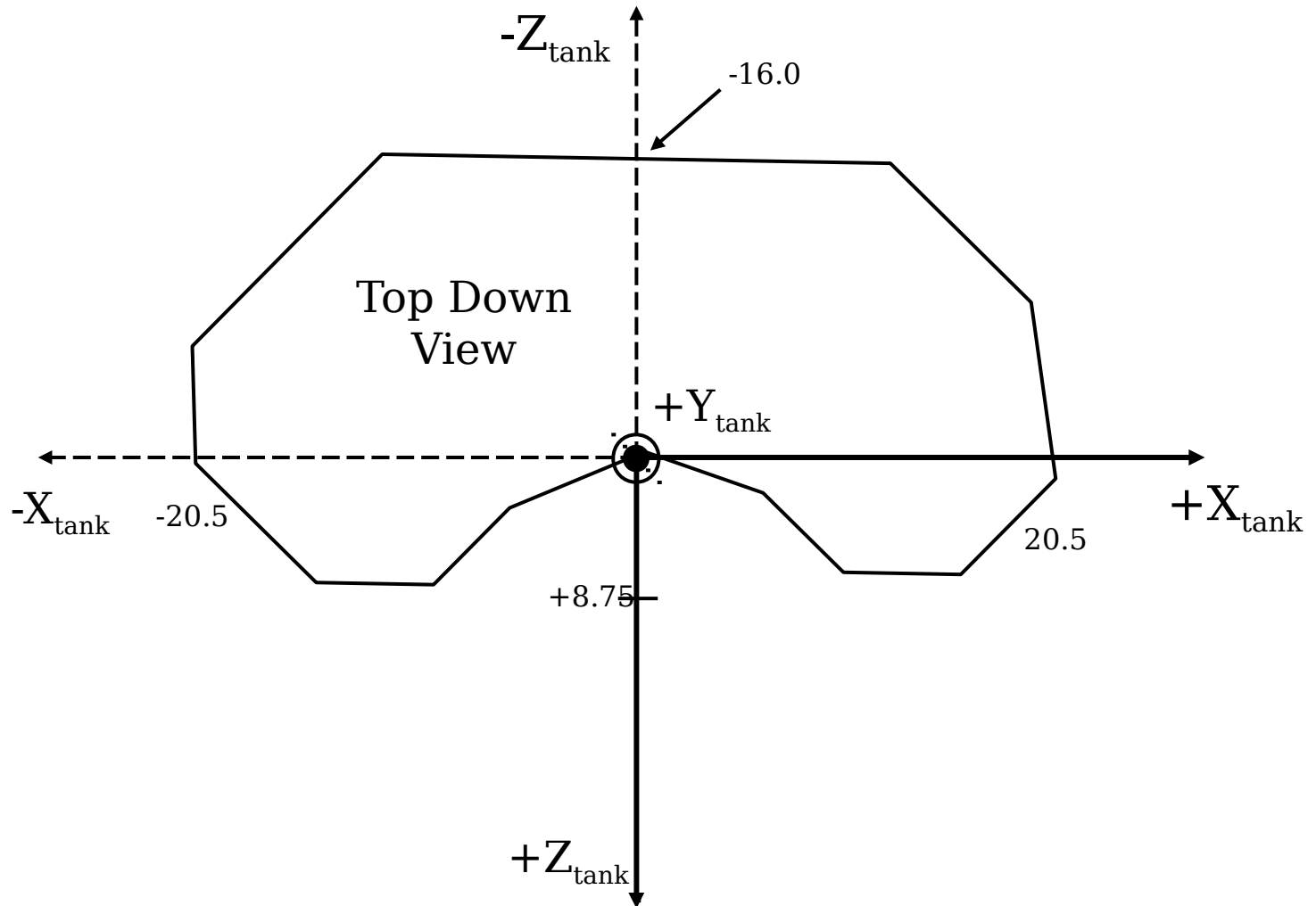
- indicates axis coming out of diagram

* Y = 0 at mean water surface

Locale

Coordinate System

Specific "Locale"

$+Y_{locale}$

$+Z_{locale}$

$+X_{locale}$

Fish Heading

$\dot{\Theta}_{locale}$

$2\,\Pi$

Π

$\Pi/2$

t_0

t_1

t

Fish Path

$\dot{\Theta}_{locale}$
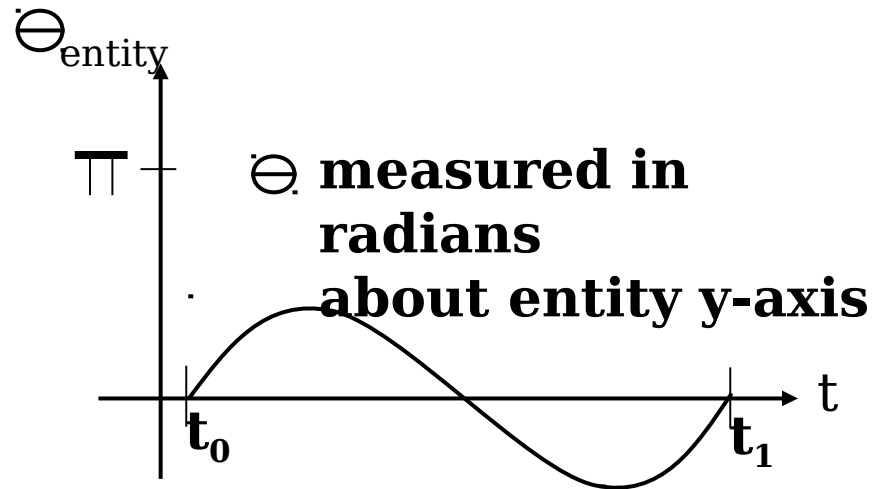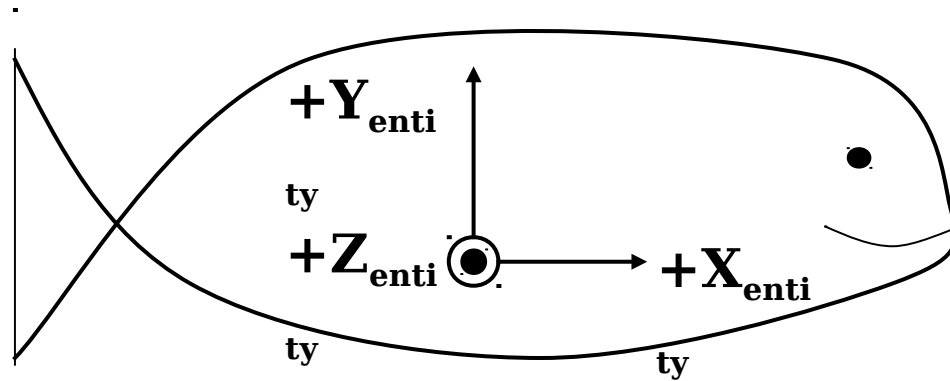
t_0

t_1
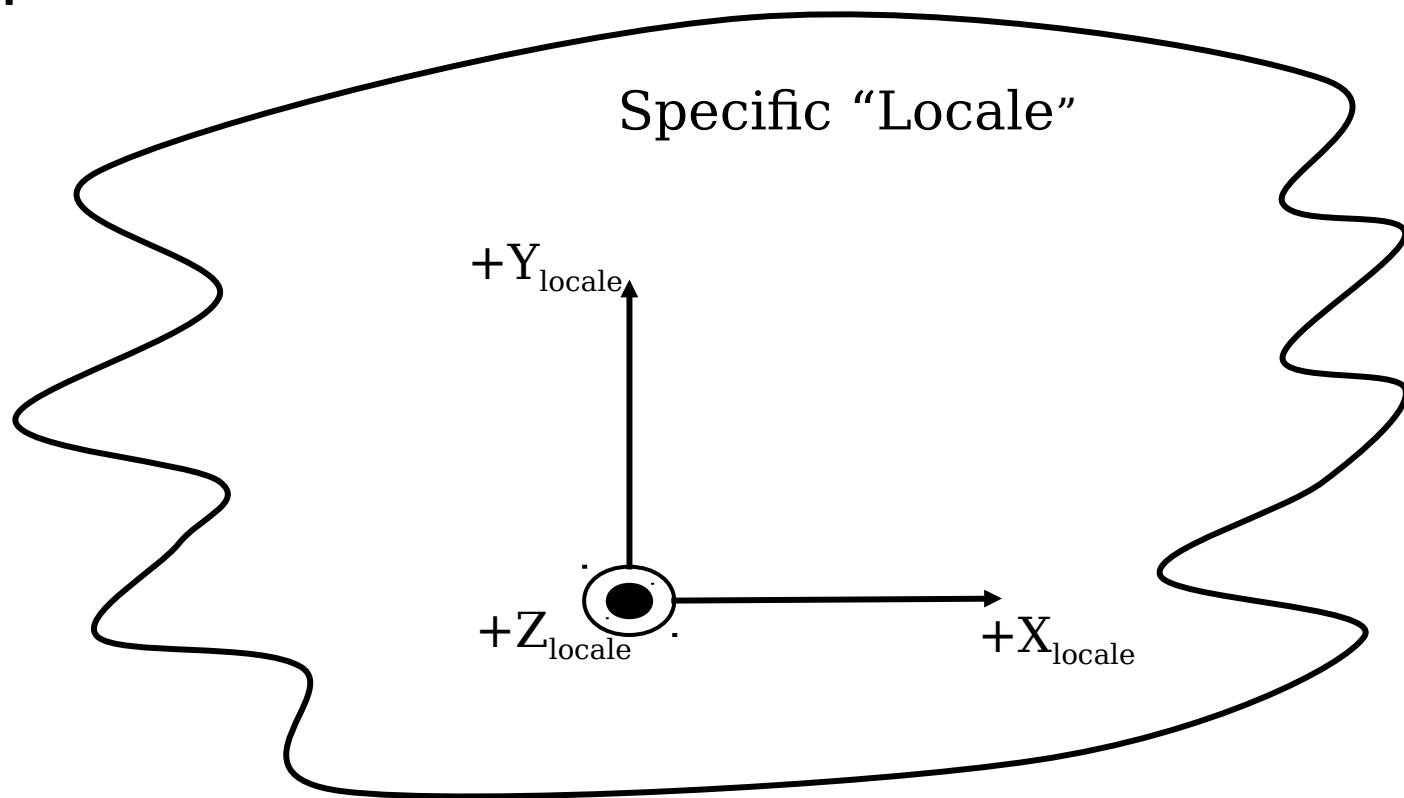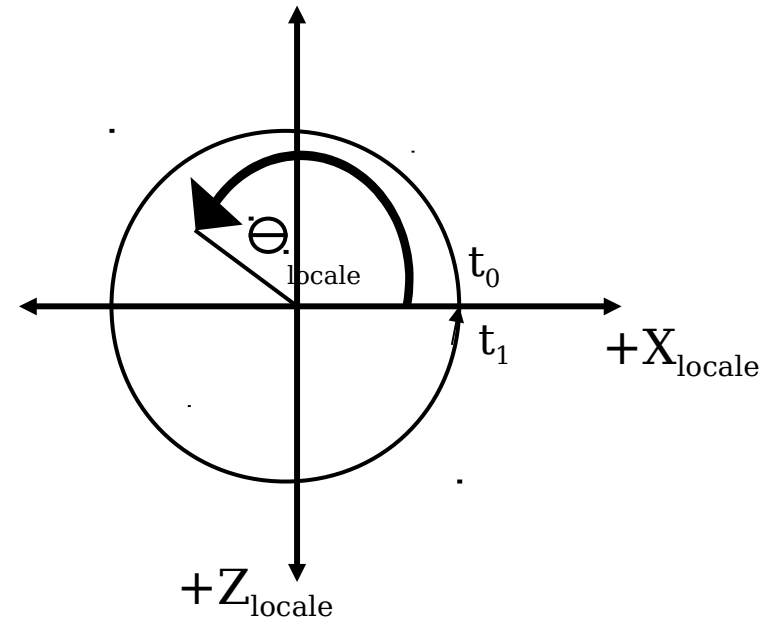
$+X_{locale}$

$+Z_{locale}$

Example of a fish swimming in a circle inside a specific locale

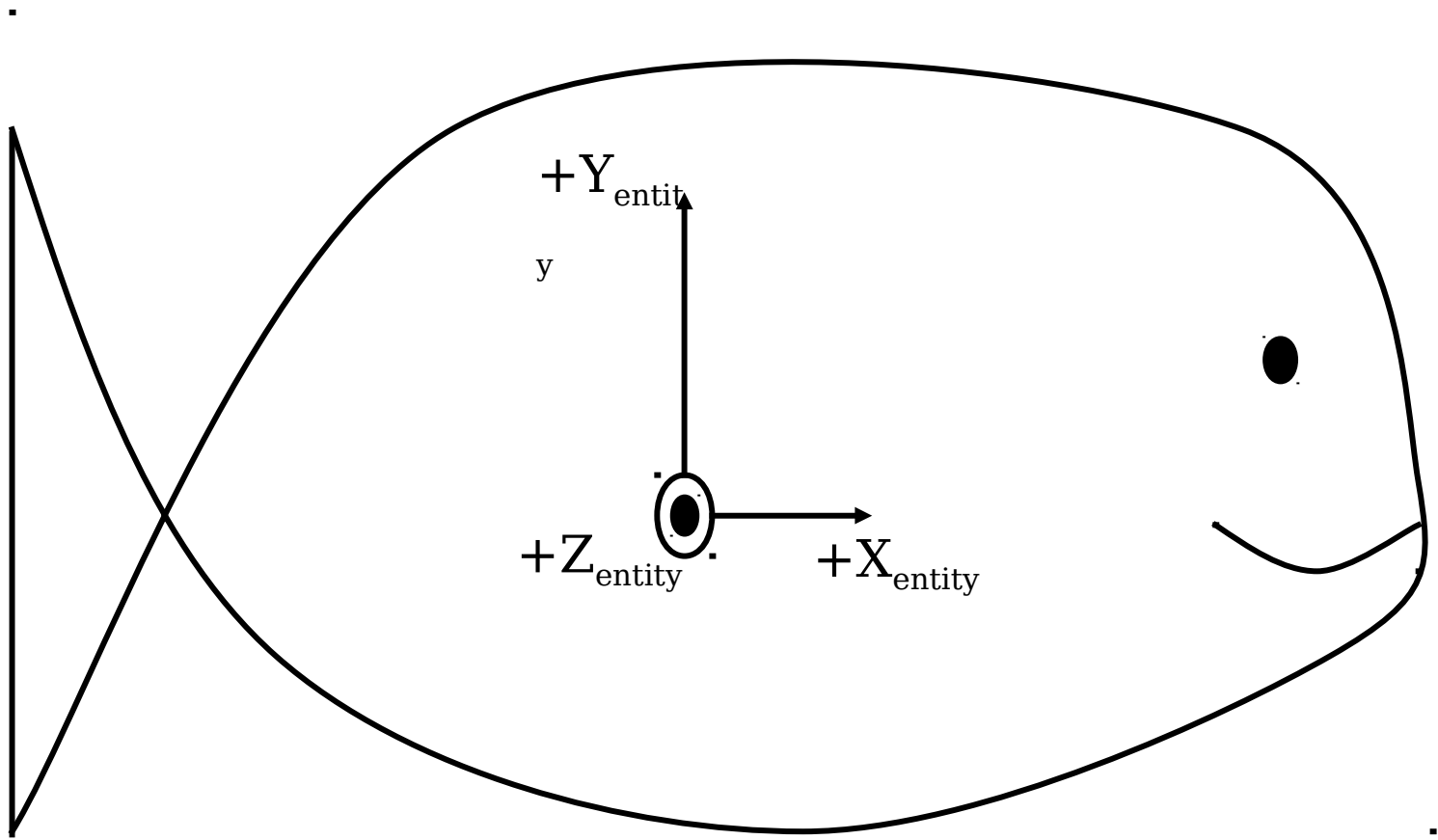Note: $\dot{\Theta}$ Measured in radians about y_{locale}-axis, Time measured in seconds

Entity
Coordinate System

Fish Wiggle

$+Y_{enti}$

ty

$+Z_{enti}$ $+X_{enti}$

ty   ty

Θ_{entity}

Π —

Θ **measured in radians about entity y-axis**

t_0 t_1 t

Entity Coordinate System

Fish Wiggle

$\dot{\ominus}_{entity}$

t_0

t_1

t

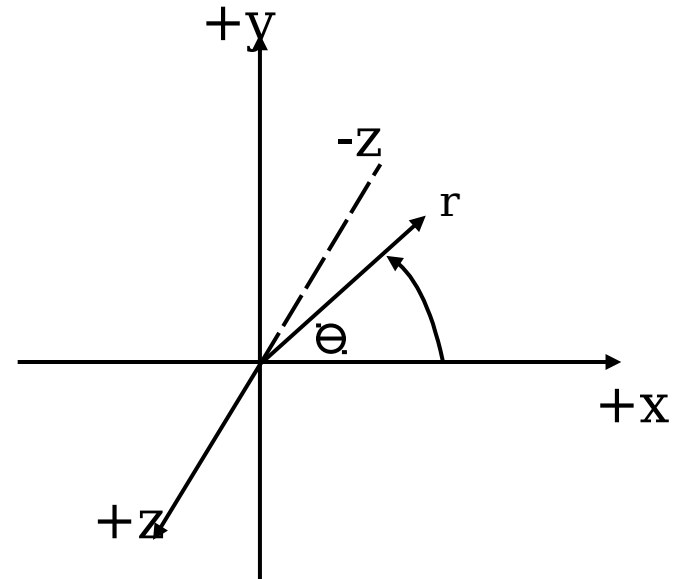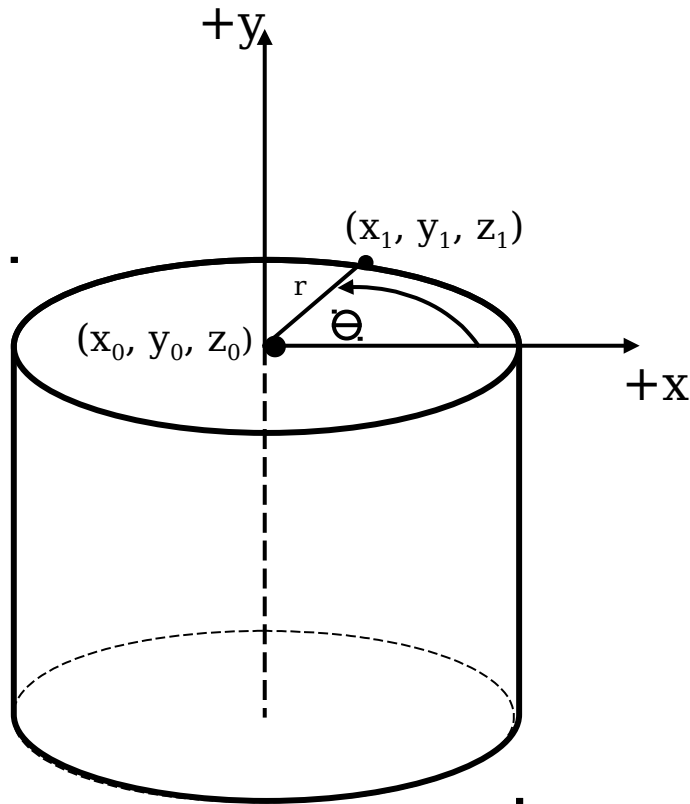$\ominus$ measured in radians about y_{fish}-axis
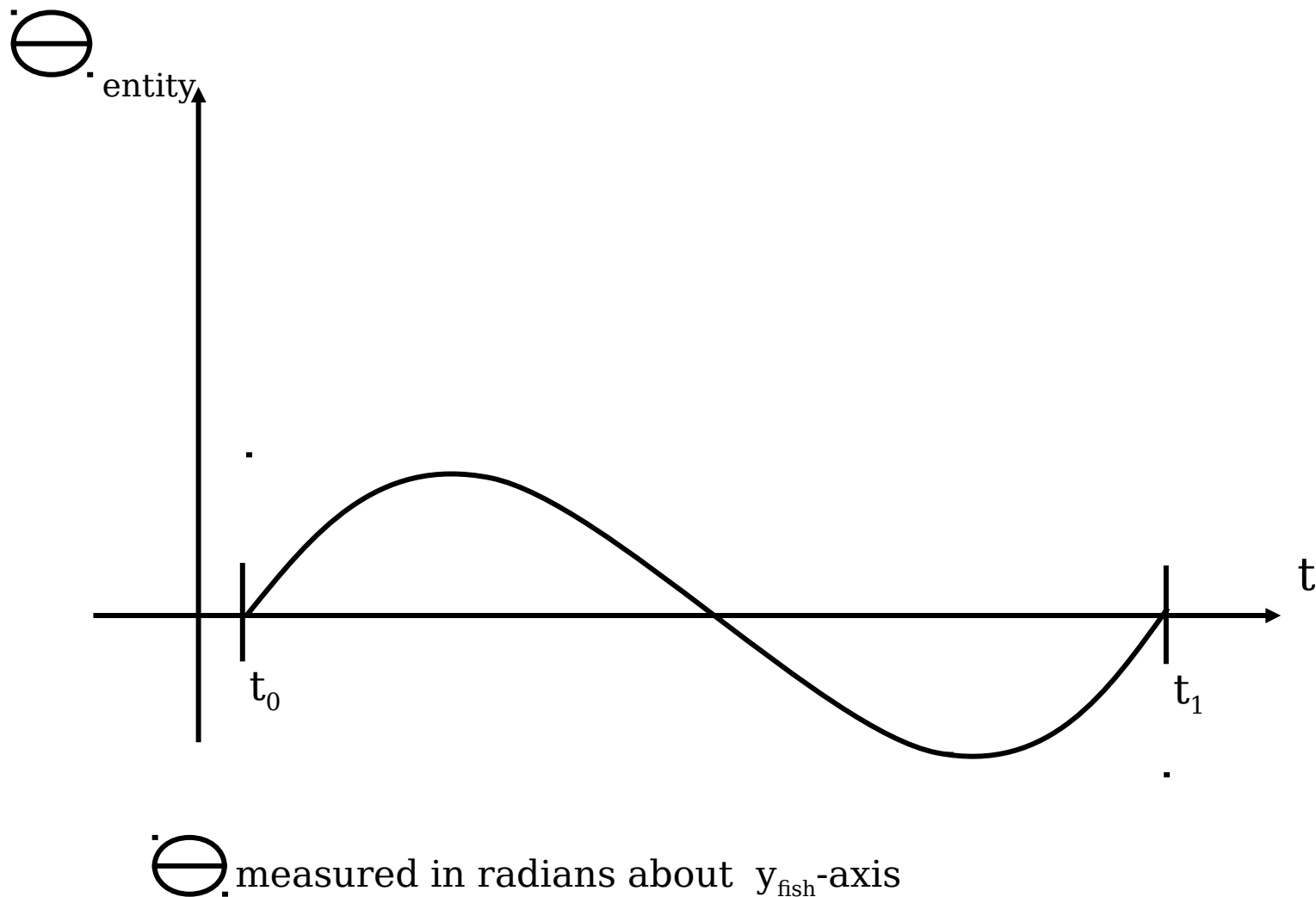
Fish Depth
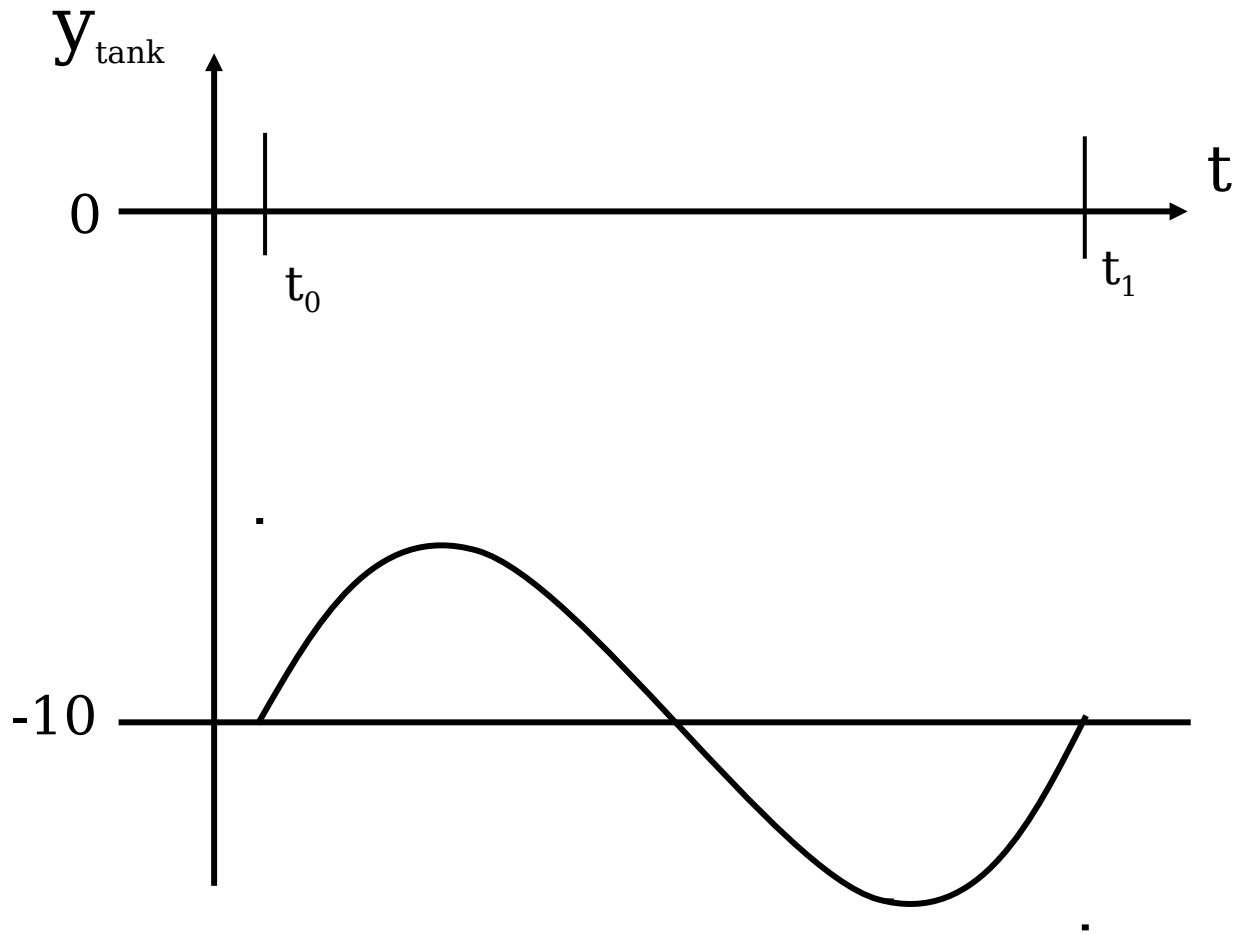
Note: Time measured in seconds
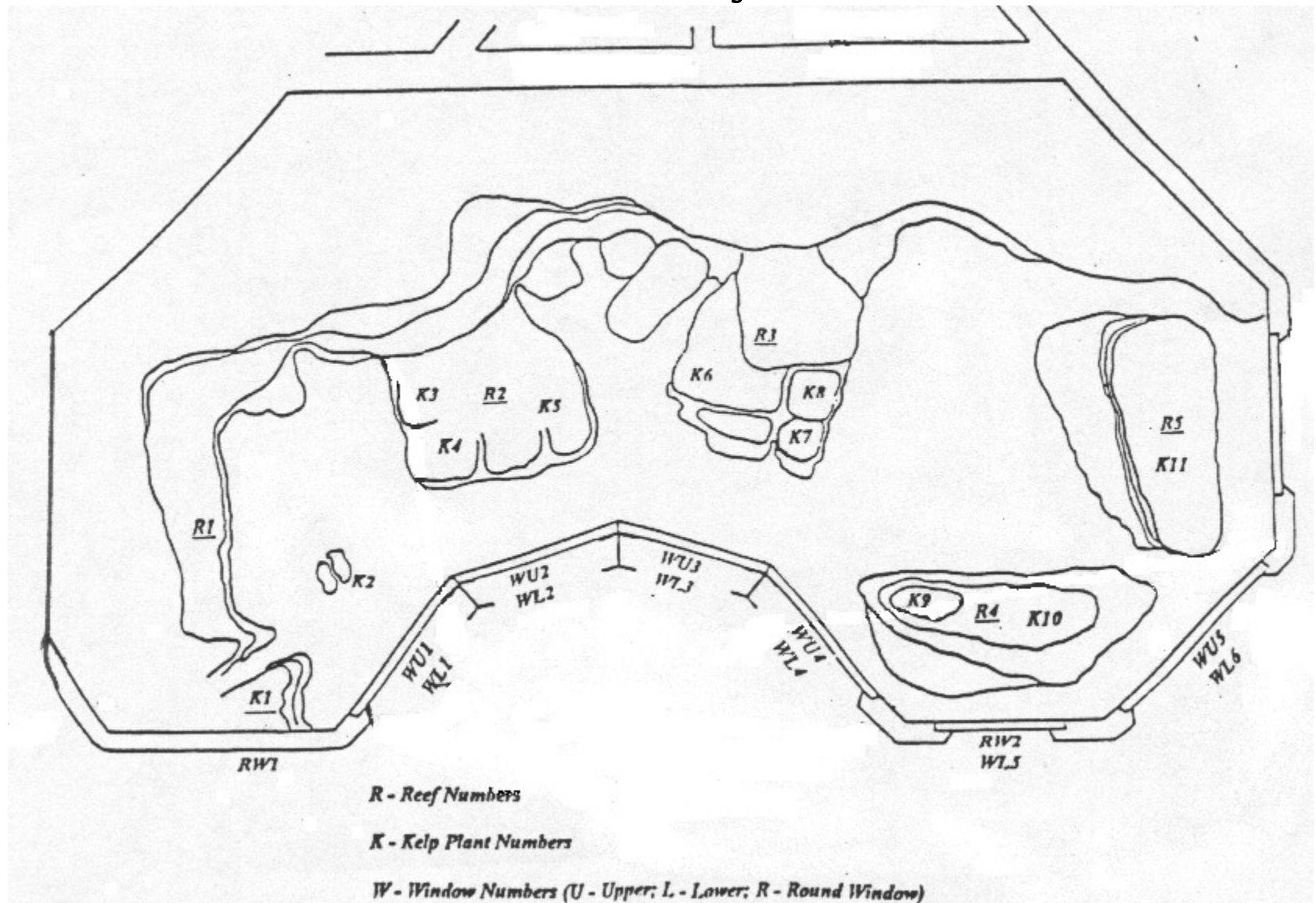Depth measure in meters

Cylindrical Coordinate System

θ measured in radians about z-axis, right-hand rule applies, $\theta = 0$

$$X_1 = X_0 + r \cos(\theta)$$
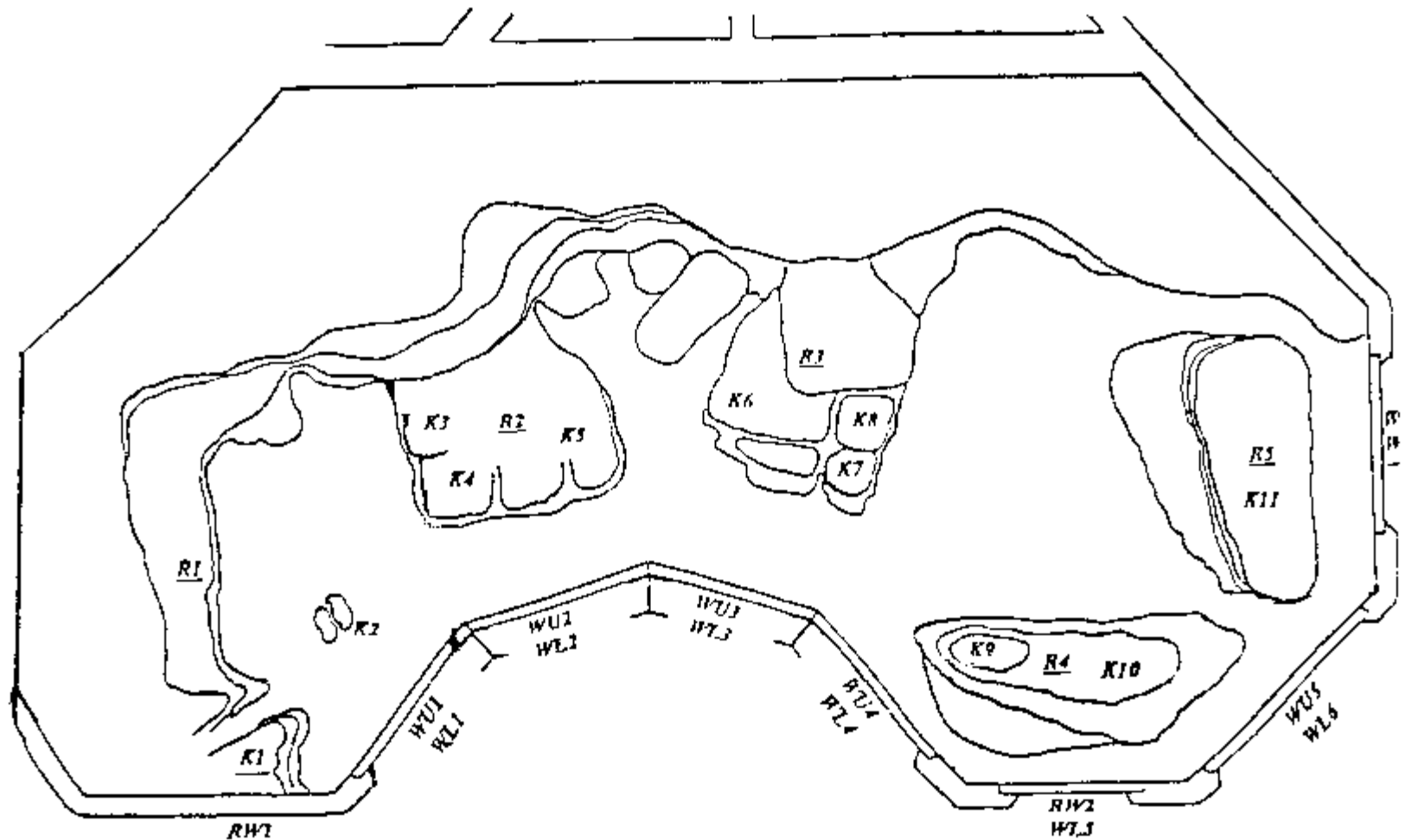$$Z_1 = Z_0 - r \sin(\theta)$$
$$Y_1 = Y_0$$

Tank Layout

R - Reef Numbers

K - Kelp Plant Numbers

W - Window Numbers (U - Upper; L - Lower; R - Round Window)

Tank Layout

R - Reef Numbers

K - Kelp Plant Numbers

W - Window Numbers (U - Upper; L - Lower; R - Round Window)